SAFETY DATA SHEET

REMOVE ALL

The safety data sheet is in accordance with Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

SECTION 1: Identification of the substance / mixture and of the company / undertaking

Date issued	16.11.2015
Revision date	22.05.2019

1.1. Product identifier

Product name	REMOVE ALL
Synonyms	2,5,7,10-tetraoxaundekan
REACH Reg. No.	01-2119969502-33
CAS No.	4431-83-8
EC No.	224-631-8
Article no.	T483070
Formula	C7H16O4

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance / preparation	Solvent

1.3. Details of the supplier of the safety data sheet

Downstream user

Company name	Relekta AS
Office address	Innspurten 1A
Postal address	Postboks 6169 Etterstad
Postcode	0663
City	Oslo
Country	Norge
Telephone number	+47 22 66 04 00
Fax	+47 22 66 04 01
Email	relekta@relekta.no
Website	www.relekta.no
Enterprise No.	NO 831 881 372

1.4. Emergency telephone number

Emergency telephone	Telephone number: +47 22 59 13 00 Description: Norwegian Poison Information Center Telephone number: 112 Description: Sweden: Require Poison Information

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

CLP classification, notes	Classification according to (EC) No.1272/2008: Not classified.

2.2. Label elements

Other label information (CLP)	NOT CLASSIFIED according to health-, fire- and environmental hazard.

2.3. Other hazards

PBT / vPvB	The mixture does not meet current criteria for PBT (Persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative).
Health effect	Splashes in the eyes may cause redness and irritation.
Environmental effects	Not easily degradable in water.

SECTION 3: Composition / information on ingredients

3.1. Substances

Substance	Identification	Classification	Contents	Notes
2,5,7,10-Tetraoxaundekane	CAS No.: 4431-83-8 EC No.: 224-631-8 REACH Reg. No.: 01-2119969502-33		> 99 %	
Substance comments	No hazardous substances subject to listing.			

SECTION 4: First aid measures

4.1. Description of first aid measures

General	Emergency telephone number: see section 1.4.
Inhalation	Fresh air and rest. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothing. Rinse immediately with plenty of water. Get medical attention if any discomfort continues.
Eye contact	Immediately flush with plenty of water or eyewash solution for up to 10 minutes. Remove contact lenses and open eyes wide apart. By prolonged rinsing, use luke warm water to avoid damage to the eye. Contact physician if discomfort continues.
Ingestion	Rinse mouth. Drink plenty of water. Do not induce vomiting. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

Acute symptoms and effects	Eye contact: May cause irritation. Symptoms may be stinging pain and redness in the eyes.

4.3. Indication of any immediate medical attention and special treatment needed

Other information	No specific information from the manufacturer. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Dry-powder, carbon dioxide (CO2), water mist, alcohol resistant foam.
Improper extinguishing media	Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	The chemical is not classified as flammable. Heating may cause a fire.
Hazardous combustion products	May include, but is not limited to: Carbon dioxide (CO2). Carbon monoxide (CO).

5.3. Advice for firefighters

Personal protective equipment	Use compressed air equipment when the chemical is involved in fire. In case of evacuation, an approved protection mask should be used. See also section 8.
Other information	Containers close to fire should be removed immediately or cooled with water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	Keep away from sources of ignition - No smoking.
Personal protection measures	Use protective equipment as referred to in section 8.

6.2. Environmental precautions

Environmental precautionary measures	Do not allow to enter into sewer, water system or soil.

6.3. Methods and material for containment and cleaning up

Clean up	Absorb in vermiculite, dry sand or earth and place into containers. Do not use sawdust or other combustible material. Collect in suitable containers and deliver as waste according to section 13. Flush with plenty of water to clean spillage area.

6.4. Reference to other sections

Other instructions	See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Provide adequate ventilation. Avoid contact with eyes. Use protective equipment as referred to in section 8.

Protective safety measures

Safety measures to prevent fire	Do not use near naked flames or glowing materials. Keep away from sources of ignition - No smoking. Use explosion-proof electrical / ventilating / lighting / / equipment.
Advice on general occupational hygiene	Do not eat, drink or smoke during work. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Store in tightly closed original container in a well-ventilated place. Store in a dark place.
Conditions to avoid	Keep away from heat, sparks and open flame.

Conditions for safe storage

Advice on storage compatability	Keep away from: Oxidizing agents. Strong acids.

7.3. Specific end use(s)

Specific use(s)	See section 1.2.

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Substance	Identification	Exposure limits	TWA Year
2,5,7,10-Tetraoxaundekane	CAS No.: 4431-83-8		
Other Information about threshold limit values	Contains no substances with occupational exposure limit values. References (laws/regulations): Norwegian regulation on exposure limits: "FOR-2011-12-06-1358 Forskrift om tiltaksverdier og grenseverdier for fysiske og kjemiske faktorer i arbeidsmiljøet samt smitterisikogrupper for biologiske faktorer (forskrift om tiltaks- og grenseverdier)". Swedish regulation on exposure limits: Arbetsmiljöverkets föreskrifter och allmänna råd om hygieniska gränsvärden, ”Hygieniska gränsvärden”, AFS 2018:1		

DNEL / PNEC

Substance	2,5,7,10-Tetraoxaundekane
DNEL	**Group:** Consumer **Route of exposure:** Long term (repeated) - Oral - Systemic effect **Value:** 0,83 mg/kg bw/d **Group:** Consumer **Route of exposure:** Long term (repeated) - Inhalation - Systemic effect **Value:** 2,9 mg/m³

	Group: Worker **Route of exposure:** Long term (repeated) - Inhalation - Systemic effect **Value:** 11,75 mg/m³ **Group:** Consumer **Route of exposure:** Long term (repeated) - Dermal - Systemic effect **Value:** 0,83 mg/kg bw/d **Group:** Worker **Route of exposure:** Long term (repeated) - Dermal - Systemic effect **Value:** 1,67 mg/kg bw/d
PNEC	**Route of exposure:** Freshwater sediments **Value:** 234,64 mg/kg dw **Route of exposure:** Sewage treatment plant STP **Value:** 10 mg/l **Route of exposure:** Saltwater **Value:** 6,25 mg/l **Route of exposure:** Freshwater **Value:** 62,54 mg/l **Route of exposure:** Soil **Value:** 0,5427 mg/l **Route of exposure:** Saltwater sediments **Value:** 23,46 mg/kg dw

8.2. Exposure controls

Precautionary measures to prevent exposure

Technical measures to prevent exposure	Provide adequate ventilation. The personal protective equipment must be CE-marked and the latest version of the standards shall be used. The protective equipment and the specified standards recommended below are only suggestions, and should be selected on advice from the supplier of such equipment. A risk assessment of the work place/work activities (the actual risk) may lead to other control measures. The protection equipment's suitability and durability will depend on application.

Eye / face protection

Eye protection equipment	Description: Normally not necessary. Risk of splashes: Wear tight-fitting goggles or face shield. Reference to relevant standard: EN 166 (Personal eye-protection. Specifications).
Additional eye protection measures	Eye wash facilities should be available at the work place. Either a fixed eye wash facility connected to the drinking water (preferably warm water) or a portable disposable unit.

Hand protection

Suitable materials	Butyl rubber.

Breakthrough time	Value: > 480 minute(s)
Thickness of glove material	Value: 0,7 mm
Hand protection equipment	Description: Use protective gloves that are suitable for the application. The gloves abilities may vary among the different glove manufacturers. Reference to relevant standard: BS-EN 374 (Protective gloves against chemicals and micro-organisms). BS-EN 420 (Protective gloves. General requirements and test methods).
Additional hand protection measures	Replace gloves if signs of wear and tear.

Skin protection

Recommended protective clothing	Description: Ordinary workwear.
Additional skin protection measures	Emergency shower should be available at the workplace.

Respiratory protection

Recommended respiratory protection	Description: Normally not required.

Appropriate environmental exposure control

Environmental exposure controls	Do not allow to enter into sewer, water system or soil.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Colour	Colourless.
Odour	Characteristic.
Odour limit	Comments: Not specified by the manufacturer.
pH	Status: In delivery state Comments: Not specified by the manufacturer.
Melting point / melting range	Value: < -65 °C
Boiling point / boiling range	Value: 210 °C
Flash point	Value: 88 °C Method: ASTM D93 Closed Cup Comments: 1013 hPa
Evaporation rate	Value: 17,380 Comments: Butyl acetate = 1
Flammability	Non flammable.
Explosion limit	Value: 0,6 - 38,2 vol%
Vapour pressure	Value: 22,5 hPa Temperature: 20 °C
Vapour density	Comments: Not specified by the manufacturer.

Relative density	Value: 0,99 Temperature: 20 °C
Density	Value: 992 kg/m³ Temperature: 20 °C
Solubility	Medium: Water Comments: Completely soluble in water.
Partition coefficient: n-octanol/ water	Value: -0,69 Method: OECD 107, Shake Flask Method
Auto-ignition temperature	Value: 210 °C Method: v/1013 hPa, ASTM E659-78
Decomposition temperature	Comments: Not specified by the manufacturer.
Viscosity	Value: 1,532 mm²/s Comments: Kinematic. Temperature: 25 °C Value: 1 mPa.s Temperature: 20 °C Type: Dynamic
Explosive properties	Not explosive.
Oxidising properties	Not oxidizing.

9.2. Other information

Physical hazards

Content of VOC	Value: 100 % Value: 992,1 g/l
Number average molecular weight	Value: 164,20 g/mol

Other physical and chemical properties

Physical and chemical properties	Surface tension: 31,5 mN/m v/25°C

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Heating may cause a fire.

10.2. Chemical stability

Stability	Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Arise in contact with inappropriate conditions and incompatible materials (sections 10.4 and 10.5)

10.4. Conditions to avoid

Conditions to avoid	Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid	Oxidizing agents. Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products	None under normal conditions. See also section 5.2.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Substance	2,5,7,10-Tetraoxaundekane
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Value:** > 5000 mg/kg **Animal test species:** Rat **Test reference:** OECD 423 **Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Dermal **Value:** > 2000 mg/kg **Animal test species:** Rat **Test reference:** OECD 402
Other toxicological data	There are stated more test results by the producer. The results are negative except for those tests that support the already given classification of the substances (see section 3).

Other information regarding health hazards

Assessment of acute toxicity, classification	Based on available data, the classification criteria are not met.
Assessment of skin corrosion / irritation, classification	Based on available data, the classification criteria are not met.
Assessment of eye damage or irritation, classification	Based on available data, the classification criteria are not met.
Assessment of respiratory sensitisation, classification	Based on available data, the classification criteria are not met.
Assessment of skin sensitisation, classification	Based on available data, the classification criteria are not met.
Assessment of germ cell mutagenicity, classification	Based on available data, the classification criteria are not met.
Assessment of carcinogenicity, classification	Based on available data, the classification criteria are not met.
Assessment of reproductive toxicity, classification	Based on available data, the classification criteria are not met.

Assessment of specific target organ toxicity - single exposure, classification	Based on available data, the classification criteria are not met.
Assessment of specific target organ toxicity - repeated exposure, classification	Based on available data, the classification criteria are not met.
Assessment of aspiration hazard, classification	Based on available data, the classification criteria are not met.

Symptoms of exposure

In case of ingestion	No specific information from the manufacturer.
In case of skin contact	No specific information from the manufacturer.
In case of inhalation	No specific information from the manufacturer.
In case of eye contact	May cause slight irritation.

SECTION 12: Ecological information

12.1. Toxicity

Substance	2,5,7,10-Tetraoxaundekane
Aquatic toxicity, fish	**Value:** > 100 mg/l **Species:** Pisces **Method:** LC50 **Test reference:** OECD 203
Substance	2,5,7,10-Tetraoxaundekane
Aquatic toxicity, algae	**Value:** > 100 mg/l **Test duration:** 72h **Species:** Algae **Method:** ErC50 **Test reference:** OECD 201
Substance	2,5,7,10-Tetraoxaundekane
Aquatic toxicity, crustacean	**Value:** > 100 mg/l **Test duration:** 48h **Species:** Daphnia magna **Method:** EC50 **Test reference:** OECD 202
Ecotoxicity	The chemical is not classified as harmful to the environment.

12.2. Persistence and degradability

Substance	2,5,7,10-Tetraoxaundekane
Biodegradability	**Value:** 4,3 % **Method:** OECD 301D: Closed Bottle Test **Test period:** 28d
Persistence and degradability, comments	Degradation in the aquatic environment. Not readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential	The chemical is not expected to be bioaccumulative.
Substance	2,5,7,10-Tetraoxaundekane
Bioconcentration factor (BCF)	**Value:** 3,126

12.4. Mobility in soil

Mobility	Mobile. The chemical is absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT assessment results	The mixture does not meet current criteria for PBT (Persistent, bioaccumulative and toxic).
vPvB evaluation results	The mixture does not meet current criteria for vPvB (very persistent and very bioaccumulative).

12.6. Other adverse effects

Other adverse effects, comments	The chemical contains no substances which are known to contribute to the greenhouse effect. Do not allow to enter into sewer, water system or soil.
Ozone depletion potential	Comments: The chemical contains no substances classified as hazardous to the ozone layer.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	Deliver to authorised waste vendor. The waste code (EWC-Code) is intended as a guide. The user must select a code if the use differs from the one mentioned below.
EWC waste code	EWC waste code: 070799 wastes not otherwise specified Classified as hazardous waste: No
Other information	Do not empty into drains.

SECTION 14: Transport information

Dangerous goods	No

14.1. UN number

Comments	Not considered as dangerous goods under UN, IMO, ADR/RID or IATA/ICAO regulations.

14.2. UN proper shipping name

Comments	Not relevant.

14.3. Transport hazard class(es)

Comments	Not relevant.

14.4. Packing group

Comments	Not relevant.

14.5. Environmental hazards

Comments	Not relevant.

14.6. Special precautions for user

Special safety precautions for user	Not relevant.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk (yes/no)	No

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

References (laws/regulations)	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP-regulation) with later amendments. Regulation (EC) No 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH Regulation), with later amendments. Norwegian regulations on waste. no. 930/2004, from the Ministry of Environment. Dangerous Goods regulations

15.2. Chemical safety assessment

Chemical safety assessment performed	Yes

SECTION 16: Other information

Supplier's notes	The information contained in this SDS must be made available to all those who handle the product.
Key literature references and sources for data	Suppliers Safety data sheet dated: 15.04.2019.
Abbreviations and acronyms used	EWC: European Waste Code (a code from the EU's common classification system for waste) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative DNEL: Derived No Effect Level PNEC: Predicted No Effect Concentration LD50: Lethal dose, is the amount of a substance given to a group of test animals, which causes the death of 50%. LC50: Median concentration lethal to 50% of a test population. Log Pow: Partition coefficient: n-octanol / water Koc: The adsorption coefficient normalized to the organic carbon content of the soil, is an indicator of the binding capacity of a chemical on organic matter of soil and sewage sludge.

	VOC: Volatile Organic Compounds NOAEL: No observed adverse effect level. NOAEC: No observed adverse effect concentration (No observed adverse effect concentration). OECD: Organisation for Economic Cooperation and Development.
Information added, deleted or revised	Sections being revised since previous version: 1, 4, 7, 8, 9, 11, 13 & 16.
Checking quality of information	This SDS is quality controlled by Kiwa Teknologisk Institutt in Norway, certified according to the Quality Management System requirements specified in ISO 9001:2015.
Version	2
Prepared by	Teknologisk Institutt as /Irene S. Sortland.